

REMARKS

Claims 20, 28-31, 33-38, 40-45, 47-53, 55 and 56 are pending in this application, with claims 20, 34, 41 and 49 being independent. Claims 20, 34, 41 and 49 have been amended for clarity and to incorporate the limitations of dependent claims 32, 39, 46 and 54, which have been cancelled. Claims 20, 34, 41 and 49 have also been amended to no longer recite the limitation "formed by overetching."

Claims 34-38, 40, 49-53, 55 and 56 have been rejected as failing to comply with the written description requirement. In particular, the Examiner asserts that the specification does not provide support for a first side recessed portion and a second side recessed portion (i.e., two separate regions) being filled with one layer. While applicants do not acquiesce to the Examiner's characterization, to expedite prosecution applicants have amended independent claims 34 and 49 to recite that the first side recess is filled with a first layer and the second side recess is filled with a third layer. Accordingly, applicants request reconsideration and withdrawal of the rejection of claims 34-38, 40, 49-53, 55 and 56.

Claims 34-38, 40-45, 47-53, 55 and 56 have been rejected as being indefinite. Specifically, the Examiner asserts that it is unclear which electrode is being referenced in the claimed limitation "the electrode contains a first layer and a second layer." Applicants have amended independent claims 34, 41 and 49 to incorporate the limitations of claims 39, 46 and 54 (now cancelled), respectively. As amended, the electrode being referenced in the cited limitation is "the source electrode" and not "the gate electrode." Applicants, therefore, request reconsideration and withdrawal of this rejection.

Independent claims 20 and 41, and their dependent claims 28, 31, 42, 45 and 47, have been rejected as being anticipated by or unpatentable over Takafuji (U.S. Patent No. 4,746,628). Each of independent claims 20 and 41, as amended, recites, among other features, "a semiconductor layer on an insulating surface, wherein the semiconductor layer has a side recess" (emphasis added) and "a source electrode ... in contact with the semiconductor layer ..., wherein the source electrode contains a first layer and a second layer" (emphasis added). Applicants request reconsideration and withdrawal of the rejection of claims 20 and 41, and their dependent

claims, because Takafuji does not describe or suggest (1) the recited semiconductor layer having a side recess; and (2) the recited source electrode containing a first layer and a second layer.

With respect to the first distinction, the low resistance area 70 (which the Examiner equates to the previously recited side recessed portion) of the silicon layer 40 (which the Examiner equates to the recited semiconductor layer) of Takafuji is a source region¹ of the silicon layer 40 and, as shown in Figs. 6-9 of Takafuji, does not have a recess, much less a side recess. With respect to the second distinction, the Examiner apparently equates the low resistance area 70 in combination with the source electrode 50 to the recited source electrode having a first layer and a second layer. See page 3 of the Office Action. Applicants, however, submit that the low resistance area 70 is a source region of the silicon layer 40, and, therefore, is not an electrode or a part of an electrode. Accordingly, Takafuji does not describe or suggest the recited electrode containing a first layer and a second layer.

For at least these reasons, applicants request reconsideration and withdrawal of the rejection of claims 20 and 41, and their dependent claims 28, 31, 42, 45 and 47.

Claims 29, 30, 43 and 44, which depend from claims 20 and 41, have been rejected as being unpatentable over Takafuji in view of Zhang (U.S. Patent No. 5,313,075). Claims 33 and 48, which also depend from claims 20 and 41, have been rejected as being unpatentable over Takafuji in view of Applicant Admitted Prior Art (AAPA). Neither Zhang (which is cited as showing a semiconductor layer formed of silicon, germanium and silicon-germanium), AAPA (which is cited as showing a thin film device used as an active matrix type EL display device), nor any proper combination of the two remedies the failure of Takafuji to describe or suggest the recited semiconductor layer having a side recess or the recited source electrode containing a first layer and a second layer, as recited in claims 20 and 41. Accordingly, applicants request reconsideration and withdrawal of the rejection of claims 29, 30, 33, 43, 44 and 48.

Independent claims 34 and 49, and their dependent claims 35, 38, 50, 53 and 55, have been rejected as being unpatentable over Takafuji in view of Davies (U.S. Patent No. 5,712,501). Each of independent claims 34 and 49 recites, among other features, “a gate electrode ... wherein the gate electrode has a second side recess” (emphasis added) and a “wiring [is] in

¹ It may be inferred that the low resistance area 70 is a source region because it is in contact with source electrode 50.

contact with the gate electrode, wherein ... the wiring contains a third layer and a fourth layer' (emphasis added). Applicants requests reconsideration and withdrawal of the rejection of claims 34 and 49, and their dependent claims, because (1) neither Takafuji, Davies, nor any proper combination of the two describes or suggests the recited gate electrode having a side recess or the recited wiring that contains a third layer and a fourth layer and that is in contact with the gate electrode having the side recess; and (2) a proper motivation to combine Takafuji and Davies in the manner asserted by the Examiner has not been provided.

In particular, as acknowledged by the Examiner on page 6 of the Office Action, Takafuji does not describe or suggest the recited gate electrode and wiring. The Examiner refers to Davies as disclosing these features.

Specifically, the Examiner equates the gate electrode 26 of Davies to the recited wiring. The gate electrode 26, however, does not "contain a third layer and a fourth layer." Rather, the gate electrode 26 contains a single silicide layer. See col. 6, lines 23-27.

The Examiner equates the semiconductor material 23 of Davies to the recited gate electrode. The semiconductor material 23, however, is not a gate electrode, but rather is a semiconductor material in contact with a gate electrode 26. Moreover, the gate electrode 26, which the Examiner equates to the previously recited "second side recessed portion," is not a side recess of the semiconductor material 23. Rather, the gate electrode 26 is just that, a gate electrode, and not a recess, much less a side recess of the semiconductor material 23.

For at least these reasons, neither Takafuji, Davies, nor any proper combination of the two describes or suggests the recited gate electrode or wiring.

Moreover, the Examiner has not provided a proper motivation to combine the references. The Examiner states:

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the gate electrode with a second side recessed portion filled with the first layer and a wiring in contact with the gate electrode and containing a first layer and a second layer in Takafuji et al.'s device in order to reduce contact resistance of the device, and in order to operate the device in its intended use by connecting wiring to the gate electrode. Office Action, page 7.

Applicant's submit that the Examiner's motivation to combine the teachings of Davies and Takafuji is not supported by the references. Specifically, the references do not support combining the teachings of Davies and Takafuji "in order to reduce the contact resistance of the

device and in order to operate the device in its intended use by connecting wiring to the gate electrode.” The references do not describe contact resistance, much less suggest a desirability to modify the Takafuji device in the manner suggested by the Examiner in view of Davies to reduce contact resistance. If the Examiner is asserting that such a motivation arises from “well-known knowledge,” applicants respectfully request supporting documentary evidence pursuant to MPEP 2144. Applicants also respectfully request clarity as to what is meant by “in order to operate the device in its intended use” and request that the Examiner cite corresponding supporting portions in the references.

For at least these reasons, applicants request reconsideration and withdrawal of the rejection of claims 34 and 49, and their dependent claims 35, 38, 50, 53 and 55.

Claims 36, 37, 51 and 52, which depend from claims 34 and 49, have been rejected as being unpatentable over Takafuji in view of Davies and Zhang. Claims 40 and 56, which also depend from claims 34 and 49, have been rejected as being unpatentable over Takafuji in view of Davies and AAPA. Neither Zhang, AAPA, nor any proper combination of the two remedies the failure of Takafuji and Davies to describe or suggest the features of the independent claims discussed above. Accordingly, applicants request reconsideration and withdrawal of the rejection of claims 36, 37, 40, 51, 52 and 56.

Applicants submit that all claims are in condition for allowance.

The fee in the amount of \$790 in payment for the Request for Continued Examination fee is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

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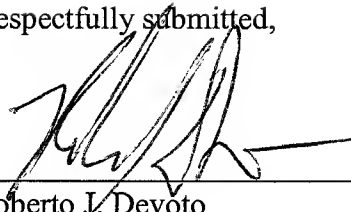
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Respectfully submitted,



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